

**IN THE CLAIMS**

Please cancel claim 36 without prejudice or disclaimer.

Please amend claims 31-33 and 37-44 as follows:

1-30. (Canceled).

31. (Currently Amended): A method for detecting cancer, comprising the steps of:

i) a) adding to a **first** portion of a sample to be assayed:

a first protein, said first protein being one that selectively binds to a first sugar chain structure on a carcinoembryonic antigen; and

an antibody against a constant region of carcinoembryonic antigens; and

(b) detecting if a complex is formed of said first protein, said antibody and carcinoembryonic antigen;

ii) a) adding to a **second** portion of said sample to be assayed:

a second protein, said second protein being one that selectively binds to a second sugar chain structure on a carcinoembryonic antigen, different from said first sugar chain structure; and

said antibody against a constant region of carcinoembryonic antigens; and

(b) detecting if a complex is formed of said second protein, said antibody, and carcinoembryonic antigen; and

iii) determining the presence of a particular cancer based on whether complexes are detected

in steps (i)(b) and (ii)(b).

32. (Currently Amended): The method of claim 31, further comprising:

iv) a) adding to a ~~third~~ portion of said sample to be assayed:

a third protein, said third protein being one that selectively binds to a third sugar chain structure on a carcinoembryonic antigen, different from said first and second sugar chain structures; and

said antibody against a constant region of carcinoembryonic antigens; and

(b) detecting if a complex is formed of said third protein, said antibody, and carcinoembryonic antigen; and

wherein said step (iii) comprises determining the presence of a particular cancer based on whether complexes are detected in steps (i)(b), (ii)(b) and (iv)(b).

33. (Currently Amended): The method of claim 32, further comprising:

v) a) adding to a ~~fourth~~ portion of said sample to be assayed:

a fourth protein, said fourth protein being one that selectively binds to a fourth sugar chain structure on a carcinoembryonic antigen, different from said first, second and third sugar chain structures; and

said antibody against a constant region of carcinoembryonic antigens; and

(b) detecting if a complex is formed of said fourth protein, said antibody, and

U.S. Patent Application Serial No. 09/594,577  
Amendment dated October 2, 2003  
Reply to OA of July 2, 2003

carcinoembryonic antigen; and

wherein said step (iii) comprises determining the presence of a particular cancer based on the whether complexes are detected in steps (i)(b), (ii)(b), (iv)(b) and (v)(b).

34. (Previously Presented): The method of claim 31, wherein said first protein is an Anti-Le<sup>a</sup> antibody.

35. (Previously Presented): The method of claim 34, wherein:  
said second protein is an Anti-S-Le<sup>a</sup> antibody.

36. (Canceled).

37. (Currently Amended): The method of claim 33, wherein:  
said first protein is an Anti-Le<sup>a</sup> antibody;  
said second protein is an Anti-S-Le<sup>x</sup> antibody;  
said third protein is an Anti-S-Le<sup>a</sup> antibody; and  
said fourth protein is an ~~Anti-S-Le<sup>y</sup>~~ Anti-Le<sup>y</sup> antibody.

38. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that rectal cancer is present when there is:

U.S. Patent Application Serial No. 09/594,577  
Amendment dated October 2, 2003  
Reply to OA of July 2, 2003

a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-Le<sup>y</sup> antibody.

39. (Currently Amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that colon cancer is present when there is:  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;  
~~a detectable~~ an undetectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
~~an undetectable~~ a detectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-Le<sup>y</sup> antibody.

40. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that lung cancer is present when there is:

a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup> antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-  
Le<sup>y</sup> antibody.

41. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that liver cancer or pharyngitis cancer is present when there is:  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup>  
antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-  
Le<sup>y</sup> antibody.

42. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that breast cancer is present when:  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup>  
antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;

an undetectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
a detectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-Le<sup>y</sup>  
antibody.

43. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that cervix uteri cancer is present when there is:  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup> antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-  
Le<sup>y</sup> antibody.

44. (Currently amended): The method of claim 37, wherein step ~~(iv)~~ (iii) comprises:  
determining that metastasis of bone marrow lymph node is present when there is:  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>a</sup>  
antibody;  
a detectable amount of complex of carcinoembryonic antigens with the Anti-S-Le<sup>x</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the Anti-Le<sup>a</sup> antibody;  
an undetectable amount of complex of carcinoembryonic antigens with the ~~Anti-S-Le<sup>y</sup>~~ Anti-  
Le<sup>y</sup> antibody.